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Recreation Management For User Satisfaction

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Recreation Management For User Satisfaction

Sociological Study of the Condon Lake Area
Baldwin Ranger District, Manistee National Forest
1984

Abstract

Management Plan attempts commonly fail because of lack of sociological data related to the planning area. This paper looks at the users in terms of who they are, how they think, what they prefer in terms of management options, and what the implications of these patterns are on management of the Condon Lake area. This analysis can be applied to other dispersed areas as well as the one studied here.

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Chapter 1

Introduction

Background (figure A)

Small lakes, in the neighborhood of 10-15 acres, are common on only two of the seven Ranger Districts of the Huron-Manistee National Forests (i.e., Baldwin and White Cloud Districts). The fact that these lakes are common on only two Districts is not, in itself, significant unless one also considers that nearly all the lakes are completely in public ownership and within two hours' drive of over a million people. Nearly all the lakes are easily accessible with two-wheel drive vehicles. These lakes, and much of the area surrounding them, demonstrate a past history of use by recreationists, primarily during the spring and summer months.

Study Area Description (figure B)

The Condon Lake area on the Baldwin Ranger District, Manistee National Forest, was identified in the Forest Land Management Plan as having potential for management as a Semiprimitive Motorized Area. The identified area is divided neatly in two halves by a high standard two-lane gravelled Forest Road. The east half of the potential semiprimitive area is the area studied here. There are seven lakes in the study area ranging from three acres to 26 acres. In addition there are two small ponds of under two acres each. There are over 2,000 acres, mostly public ownership, in the study area.

The area is heavily timbered, with plant communities ranging from Northern Hardwood/Red Oak types near the lakes to short rotation Oak/Pine mixes on the high ground away from the lakes.

Roads within the study area are mostly two-tracks, user created and maintained. A few miles of low standard, native material roads serve the summer home groups and campground.

There are two summer home groups, one at Highbank Lake where five summer homes are under permit. One owner is from Holland, MI and four from Grand Rapids. The other group is at Sawkaw Lake, where ten summer homes are under permit. One owner is from Saginaw, the other nine owners are from Grand Rapids.

Statement of the Problem

Management reviews on the Huron-Manistee National Forests have attempted to point out potential problems related to recreational use in areas concentrated around the small lakes. The Forest has responded by devoting much of its time and effort to trying to develop a management plan to respond to a problem 1/ that has not been clearly defined. Such tasks as inventory of basic resources are easy, but what about discussions on demand? What exactly is "resource damage"? When the plans get to the stage where the Forest should next project demand and compare it against supply, the process bogs down because of lack of information.

We, as resource managers, spend a lot of time and money reacting to recreation use in dispersed areas by putting up signs, imposing rules, or installing physical controls. In fact, it has long been the philosophy

1/ Problem, as used in this paper, can be thought of as a Recreation Management target or goal.

of many managers that unregimented use cannot be tolerated. This philosophy can be contrasted to those who would do nothing hoping the "problem" will go away. The "problem" is that we do not know what the problem is. We do not know enough about the user (what the user expects from the Forest, or why the user is there at all) to be able to make decisions that will have a positive effect on the recreation experience of that user.

It is the premise of this study that before the Forest can be certain that there is a "problem," managers have to know something about the user. In other words, before the preliminary physical resource inventories are done (the easy part), some type of psycho-sociological analysis should be done that identifies those things that bear further "management." 2/

It is also apparent that many of the management tactics of the past (e.g., closing roads or limiting use) were somewhat arbitrary or, at least, reactionary and may have adversely affected some of the situations observed in this study area. If problems were solved, it was often by accident.

Purpose of Study

The purpose of this study is two-part: To describe the psychological motivations of the recreation user, specifically the user involved in the

2/ Management, in the context of this study, is synonymous with "manipulation to achieve a stated goal."

problem described earlier. Understanding the motivations (which are related to needs) of recreation users, will enable the manager to make decisions that affect those needs. Specifically, sound decisions can be made about the future management of use areas or control of the users, if based upon demonstratable needs or desires.

The purpose is also to discuss the various symptoms that have led managers to suspect there was a problem occurring in the Condon Lake area. These parts of the study are closely related since they both involve an understanding of why the user is attracted to the area and what factors are influencing his satisfaction.

The research conducted in this study leads one to certain conclusions about how the study area should be managed, for whom, and under what controls. These implications or recommendations are discussed in Chapter III and are the logical conclusion of comparing previous psycho-socio research to this study area.

Methodology

This study assembles most of the known psycho-socio research related to the dispersed recreation user and compares the conclusions of that research: first, comparisons are made between research projects and common conclusions are considered; second, the common conclusions are compared to field situations as a means of analyzing the symptoms discussed earlier. Chapter two summarizes the results of an exhaustive review of literature and a period of field review. Chapter three describes some

recommendations that are made based upon this study. These recommendations can be incorporated in a future management plan as alternatives, pending consideration of land capabilities.

Delimitations

This study is limited to the aspect of Recreation Management most difficult to address: the user. Natural Resource Inventories are an important part of a management plan. However, by limiting this study to the recreation user, much can be predicted as to the nature of the alternatives that will need to be addressed by the management plan.

Because the topic being studied covers much ground (two Ranger Districts), geographic limits were placed on the study by selecting a representative study area. It is the intent of this study that the conclusions will be of general help to both District Rangers, although they will, by necessity, be of primary concern to the Baldwin District.

Limitations

Because of the general time frame of this study, little could be done to actually "sample" the users. Some informal discussions took place on the study area which have led to conclusions supported by other research. Obviously, further testing may be necessary to prove the conclusions. More exhaustive sociological research is needed in order to broaden the sample. For instance, it is known that most of the recreation use occurs between Memorial Day and Labor Day, but this study was limited to the latter half of that season. Perhaps visits earlier in the season may have found different users.

Formal preference testing results, specific to use of the lakes, would have been helpful. Interviews of samples of the summer homeowners and the users who regularly store boats at Amaung Lake would have also been helpful. In the absence of these samples, this study was limited to reviews of literature describing other research conducted in Michigan and the Lake States, as well as the result of discussions with some of the users of the Condon Lake area.

Another limitation is concerned with the study length. Most research projects are conducted over several seasons and sample as many users during that time as possible. Since this study was limited to a portion of one season, it is not possible to predict trends, except where discussions with users have hinted at changes that may have occurred. Therefore, discussions concerning increases or decreases of use can only be general in nature.

Summary

Once a problem is perceived, a problem solving process needs to be carried out that defines the real problems, develops the viable alternatives, and selects the most advantageous course of action. This study identifies that portion of the problem solving task oriented toward the sociology of the recreation user, evaluates the problem symptoms, and gives some advice to the manager which will be useful in developing alternatives for solving the problems.

A typical problem solving process is diagrammed on the following page. The portions that relate to this study are shaded in gray.

Chapter 2

Review of Literature

(Including Field Testing)

The primary emphasis of research was in reviewing literature as it related to visitor expectations (i.e., psychological outcomes or benefits); recreation impacts to the resource, preference testing in the areas of setting, facilities needed, and controls tolerated; social carrying capacity; and conflict resolution. These are the areas most often mentioned by managers as "problems." No limits were placed on the scope of the literature reviewed, although emphasis was placed on studies done in Michigan or the Central Lake States. The theory was that common conclusions from previous research would direct the conclusions reached in this study. Many hypotheses had been formulated during the field work conducted during the summer (1983) and these were tested against the research reviewed.

Visitor Expectations

Most managers recognize the need to provide a "quality recreation experience" and to have satisfied recreation users. In fact, management of recreation areas for quality experiences is a concept basic to National Forest Management. 3/

> "But what, really, is satisfaction? Perhaps it is best described as a feeling that people have when their needs have been met ... we have tended to think of satisfaction as the outcome of an experience without considering the process involved in generating total satisfaction, or how satisfaction or other feelings may vary over the entire course of an experience." (More and Buhyoff 1979)

3/ See Appendix A for elaboration of this point.

If we are really intending to manage for user satisfaction or "Quality Recreation" then we must, in turn, understand what it takes to cause that to happen. For instance, every year hundreds of thousands of Michigan residents head north to "hunt for deer." To most managers this event implies the need for an active wildlife habitat management program. But what about those who never intend to kill a deer or do not care if they see one, but simply head to the deer camp to play cards, socialize, and maybe do a little target shooting? To them, satisfaction is not related to wildlife management but something else.

A common conclusion of many researchers is that all recreationists have an idea of what they expect from their trip to the woods (Bryan 1982, Clark, et al. 1975-1977, Driver 1976, Driver and Cooksey 1980, Knopf 1972, More and Buhyoff 1979, Stankey 1974). The degree to which this expectation is met determines, in large part, the satisfaction they receive from their trip (More and Buhyoff 1979). Driver and Cooksey (1980) and Knopf (1972) concluded that some of the primary motivations or expectations that Michigan recreationists expressed were escape from daily routine, escape from physical pressures, physical rest, tranquility (privacy), family togetherness, and to slow down mentally. Some of the least likely outcomes expected were risk-taking, social recognition, achievement, creativity, teaching or sharing skills, and independence.

So perhaps the harvesting of fish or deer is not the main reason fishermen or hunters pursue their hobby; but instead these become secondary to such things as escape, rest, tranquility, etc. Perhaps now we can begin to appreciate the need to understand what motivates people.

Another area where research agrees is that a positive reaction toward a recreation experience is related directly to positive emotion and motivation. The more strongly a person feels the need for some expectation or benefit, the stronger the emotion attached to the experience (More and Buhyoff 1979). For instance, the thrill of seeing deer (irregardless of "the kill") can lead to a positive experience. However, that in itself does not determine the degree to which the experience is viewed as positive, because such things as experiencing a change from daily routine, tranquility, and social experience with friends can make up for not seeing a deer.

According to More and Buhyoff (1979) "if attempting to improve the quality of the visitor's experience is a major objective of recreation management, then one way to capitalize on this theory is to try to increase the positive attractiveness of a goal." If we know that fishermen actually seek tranquility, privacy, and otherwise peace and quiet, then fisheries habitat management may not be as important as proper recreation management of the setting. Improving the chances to catch fish while ignoring the increasing population of campers may be self-defeating. A manager cannot always provide for, or control, the expectations of users. When a camper really desires solitude or tranquility and the setting does not provide these things, "a decision must be made about allocation of the resource--that is, who gets to use the resource and who is sent away." (Bryan 1982)

It is at this point that most managers commit a common mistake called by Schreyer (1976) "Lowest Common Denominator Management." Lowest Common

Denominator (LCD) Management is when, because we cannot please all the users all the time, we tend to manage for those expressing the least concern or are the "most inoffensive." In this way, no one really is satisfied.

Typically, when a site is overused, managers respond by hardening the site, for instance installing barrier posts, signs, gravel, toilets, and other improvements. This really does not satisfy any one user group since high use continues (disappointing those searching for some type of "solitude"), the site really does not offer the amenities other users who frequent "developed sites" prefer and the controls actually offset some of the most important needs of the user (i.e., escape from control or pressure).

A study done by Clark, et al. (1975-1977) determined that over 80% of all users gave one or more of the following reasons why they liked "dispersed areas" over developed sites:

1. No fee charged for this kind of camping.

2. They are not regimented and controlled as with other kinds of recreation.

4. Campers can alter sites to accommodate the needs of the camping party (e.g., building new fire rings, setting up tables, changing parking spaces).

4. Chance to explore little used back roads.

5. The chance to camp away from people not in my party.

The last reason was expressed by over 90% of the users sampled. These same reasons came up informally during discussions with users of the study area as well. This list of reasons clearly supports a pattern of management for the area and also supports the idea that departing from these things will ultimately lead to dissatisfaction among users.

It is also important to mention that research by Kaplan (1982) suggests that most of the users of the study area do not expect the woods to be "untamed" or necessarily natural-appearing, but rather want to use a setting where they do not need to fear wild animals lurking behind a tree or bush and where they can move about easily. This suggests that settings where vegetative management has occurred in the past, as well as settings that appear that way because of age or growing conditions (short rotation oak, for instance), will be preferred to the dark, unmanipulated woods common to maple complexes. This is, no doubt, related to the users' urban environment (Kaplan 1982).

Recreation Impacts

> "Although there is a growing concern about recreation impacts, it is also clear that substantial disagreement surrounds what constitutes unacceptable impacts." (Clark and Stankey 1979)

One of the most often expressed reasons for concern for "lack of control" of dispersed users is the category of resource damage. Clark and Stankey's comment seems very appropriate to this point and effort must be made to achieve some form of agreement on what is acceptable vs. what is not acceptable (how much is enough?). The problem seems to center around

a philosophy of "no impacts" (Clark and Stankey 1979) where no impacts, as caused by recreation use, can be tolerated. The dilemma, of course, is that all recreation use causes some kind of impact (Stankey 1974). Trampling of vegetation (particularly ground cover) is the most common and, by its very nature, is unavoidable. The question, then, is a matter of magnitude and importance.

Clark and Stankey define these terms (as they relate to recreation impacts or "resource damage") as: "Magnitude - the quantitative aspects of the phenomenon under study such as its frequency and extent. Importance - the value one assigns to some phenomenon such as sound, water pollution, or soil compaction" (1979). Managers most often associate the two as the same, implying that any impact is important, thus not to be tolerated. It can be argued that while a "no impact" standard is appropriate for some settings (for example, wilderness, where "untrammeled by man" is an objective) it does not seem reasonable elsewhere. In fact, many of the "impacts" not to be tolerated are considered a normal part of other resource management (e.g., timber harvest).

Downing and Clark (1979) compared recreationists' opinions concerning impacts to the opinions of resource managers and found wide discrepancies. Since there does not seem to be agreement between recreationists and managers concerning what constitutes an "impact" or how significant that "impact" may be, it seems reasonable to assume that opinions may also differ concerning what constitutes a pleasing recreation setting. Therefore, the significance of the discussion centers around what do

people want and what are they being offered? Are they the same? or different conditions?

It is a common condition among humans to inflate the frequency of a rare event (Dirkin 1983). This bias leads to attaching a high significance to relatively uncommon events such as occasional examples of litter, a few examples of ORV damage, etc. It is very easy to see why some managers could view the "woods as overrun by ORV's" or the "woods as full of pop cans or toilet paper." Downing and Clark (1979) found that many of the things that managers tend to view as significant are tolerated or even unnoticed by most recreationists.

Research conducted by Cleland (1983) on the study area points to the fact that most "impacts" (as described by managers) are unimportant in the sense that very little area is impacted and the observable impacts (such as lack of ground cover) are not to be considered damage. Since there seems to be so much difficulty in adequately describing resource damage, Cleland has suggested a simple matrix table (see Appendix C) where managers can use a scoring method to define the point where more extensive testing is warranted. It is assumed, then, that below that score the time and effort spent correcting the problem are not worth the cost. This will also reflect the fact that most users view a certain amount of impact as a part of the experience.

As was pointed out earlier, all forms of recreation use cause some impacts (no matter how slight). Therefore, the job of the manager is to decide how much impact can be tolerated. This usually results in a

decision relating to how much money the manager is willing to spend to correct or "head off" a problem. Is it worth the effort? This decision may not be as simple as it sounds. On the one hand, the Ranger must face those who point to obvious signs of bare soil, perhaps surface erosion, muddy water, etc. and explain why these things are okay. On the other hand, the Ranger must address users, who see the government creating what appears to be mass land disturbance in clearcuts, and explain why the little bit of disturbance they created is wrong. In addition, the Ranger must face the realization that successfully carrying out a no impact philosophy may be impossible without drastic reductions in use in many areas (Clark and Stankey 1979). In any case, he usually is calling for some form of permit system which means more administrative cost. The job, then, obviously has to involve a balance between both sides.

Preference Testing

Extensive testing has occurred in Michigan and elsewhere to determine such things as: What settings are most preferred, what facilities are preferred or unwanted, and what management controls will likely be tolerated or go unliked (misunderstood)? Downing and Clark (1979) found that most dispersed recreationists preferred no development (e.g., toilets, tables, etc.). They also value privacy, freedom, and peace and quiet--the opportunity to "do their own thing."

Dispersed recreationists tend to react favorably only to those forms of management control that they understand, not to others. This relates to the perception of, and agreement upon, need for these controls. One

discussion with a group of deer hunters near Amaung Lake revealed a rather strong agreement with the Forest policy of limiting ORV's to existing roads and "two-tracks" even though they were ORV users. However, they would not look favorably on hardening of the site they were camping in, including providing fire rings, toilets, or signs. It should be pointed out that their environmental awareness was real as evidenced by the fact that shortly after their camp was abandoned, there was no recent evidence of it having been occupied.

In their summary, Downing and Clark (1979) conclude that:

> "Managers who opt for site hardening, more intensive development, and increased regulation in response to dispersed recreation use will, more than likely, find themselves serving a different clientele as the dispersed users move on to find areas that better meet their desires."

West (1982) found that behavior of others influences perception of such things as crowding. "The more that people are bothered by the behavior of others, the more they feel crowded." Thus, it is not a simple thing to analyze that quality of setting called "remoteness." It is more likely for littering to disturb users than meeting too many people. Users of the Condon Lake area rarely felt crowded or that there were too many people. In one case, a camper who had been using the same area since the 1940's felt that only on "big weekends" was that spot likely to be crowded and he chose simply to come at other times. He seemed to be satisfied with his experience.

Lime (1974) points out that studies show a strong preference for settings with water (lakes, ponds, streams) and that users do prefer a camping spot that is "on the water" to one that is away from the water. This was not completely consistent with the area around Amaung Lake, however, where several camps near roads (but away from water) are regularly occupied during hunting season. In this case the user is attracted to another resource. It should also be pointed out that where choices are limited to camping spots away from the water's edge (as is the case in most National Forest campgrounds), those sites "with a view" will be more acceptable than those without a view. In most cases, recreationists prefer to be near the water or to at least be able to see it.

A study by Clark, et al. (1975-1977) surveyed dispersed campers whose camping style was similar to the campers using the Condon Lake area. During the course of Clark's study, it was found that over 70% of those surveyed preferred totally undeveloped settings (which Clark defines as dispersed areas or wilderness) and another 25% preferred "minimum development camps" which may include rustic facilities but minimum regimentation. Eighty percent of those surveyed said they preferred these settings because "they could alter the site to accommodate their needs." Over 80% said, in addition, that "they preferred not to be controlled as in other kinds of recreation." It seems reasonable that these responses would be common among the users of the Condon Lake area as well. Clark's study also pointed to the relative unimportance of facilities such as toilets or trash cans. It would be interesting to note that in <u>all</u> cases

where a camp was observed in the Condon Lake area during occupancy and shortly after, the following things were always the case:

1. When occupied, the site had the appearance of being "homesteaded." In other words, the campers had adapted the site to their liking using their own tables, coolers, lawn chairs, etc. Usually they had acquired a large woodpile, had dug a fire pit, and had a bonfire going.

2. In most instances the campers mentioned, on their own, how they appreciated the appearance of the spot and the general cleanliness of the area (absence of litter).

3. After leaving the spot, the camp was observed and had always been cleaned up, trash taken away, fire area reclaimed (holes filled, etc.), and all other signs of occupancy removed.

4. The most obvious conclusion is that there is a pride among the campers of how well they keep the woods looking natural (as they perceive it) and a feeling that all other campers should do the same. It should not be necessary for someone else to clean up after them. This conclusion may explain, in part, the general disagreement between user and manager perceptions of environmental problems. Users no doubt feel that they do a good job of taking care of their own impacts and many managers assume users will not.

The subject of negative behavior was discussed by West (1982) in his study of a northern Michigan area. West concluded that negative behavior on the part of some users could do more to spoil an experience for others, than actual crowding or other impacts may. "... people do not mind meeting more people in the backcountry if they are similar to themselves in norms, demeanor, and behavior. The perception of crowding involves more than mere encounters, and aggregate human density." This generally acceptable behavior seems to explain the unconcern over crowding (if it does in fact exist) in the Condon Lake area. An example of West's conclusion are the complaints that the District Ranger has had from summer homeowners at Sawkaw Lake about the "rowdy" parties of recreationists sharing the same area. The complaints identified the behavior as the problem, not the mere presence of others.

When a similar situation developed at Walkup Lake (outside the study area), the District responded by limiting group size and number of camp spots. The problem was compounded, however, by the fact that over half the lake shoreline is privately owned and year-long residents live there. They are obviously in a position to notice negative behavior. They simply chose to react to the noise situation by organizing a letter writing campaign to the District Ranger. It seems apparent that a better solution than use limits would have been some type of control over the noise, or an educational program directed at the recreation users.

West (1982) proposes a concept of "behavioral zoning" through two methods: (a) suggestive zoning (i.e., the honor system) and (b) enforced zoning. For example, low noise zones could be established where peace

and quiet is the most sensitive requirement of the setting. Other areas, where chance of interaction between users is low, could be promoted for group gatherings.

Social Carrying Capacity

It became very evident from discussions with Schreyer, Kaplan, and West as well as the abundance of literature available, that some of the most basic concepts we have come to depend upon were, in fact, suspect. According to Schreyer (1976, 1979, and personal communication), the concept of "carrying capacity" has been misused. Carrying capacity cannot be thought of as a single number, beyond which we dare not allow use. In fact, many attempts to calculate such figures (called "acreage needs," use limits, carrying capacity, etc.) have failed. (See Appendix B) There are many considerations and ideas of how many people can be tolerated and people's perception of crowding depends on many other things than mere numbers (West 1981, 1982). Kaplan (1982) may agree, at least in part, by pointing to evidence that most urban dwellers carry some of their tolerances for urban-type conditions to the woods. For example, Kaplan established that urban dwellers prefer to see "open, tamed woods" over a more natural, dense woods. The things people are "fleeing the cities" to escape are not the environmental things man affects, but the psychological pressures. This is consistent with West's findings that vast numbers of people are more likely to be tolerated than litter, for example (1982).

To support the idea that there is no such thing as carrying capacity, Schreyer (1976) uses an interesting premise that "recreational carrying capacity is a human concept. Therefore, an understanding of human behavior is critical to dealing with any kind of a capacity issue." There is, then, a close relationship between recreational carrying capacity and user satisfaction. What is the manager trying to accomplish through establishment of a carrying capacity? By limiting numbers we do not necessarily create an environment conducive to finding solitude, for many people feel crowded in a little used wilderness and some may find solitude in an urban environment.

In many ways, we have come to lean upon carrying capacity (or more correctly--use limits) as a means to solve problems when other solutions are actually more equitable and defensible (i.e., make more sense to the user). For instance:

1. Social conflict (i.e., limiting volume of use, limits frequency of contact.

Discussion: It is common for only one party to feel conflict. Therefore, it is probably better to identify "primary management clientele" (Shreyer 1976) and let them determine management strategy.

2. Perceived overuse (evidenced by "resource damage").

Discussion: In this case, use limits may be an acceptable tool depending upon magnitude and importance of impacts. Use chart in Appendix C. Consider zoning concepts which discourage rather than prohibit use (e.g., no overnight camping--day use only).

3. Need to have "management control" (i.e., a way to know more about user or how many users).

Discussion: Until the manager knows more about the user and whether impacts are intolerable, use limits are premature.

4. Site is now used by clientele more tolerant of "crowding" than previous users were. Manager tries to reestablish a setting more conducive to the less tolerant user.

Discussion: This rarely works (exception: established wilderness). Less tolerant users rarely return. Everyone is dissatisfied. Better to recognize the new clientele and manage for them.

5. "Use limits" may be applied as a means of increasing use (i.e., if capacity is higher than current use, then increases are warranted). No real increases are actually caused.

Discussion: This process is mostly used in multi-resource plans, but the concept is based on false assumptions. Different expectations lead to different perceptions of capacity. In other words, even though the area being planned is not being used to "capacity" it may, in fact, be overused for certain people. If increased use is the goal, other tools exist: advertising, maps, signs, personal contacts, etc.

Schreyer (1976) explains that even though we may wish to limit numbers of users [4/] in an area by setting use limits, we must understand the "floating baseline" that confuses the issue. As more people enter an area, the one least likely to tolerate the increasing numbers is also least likely to be sampled (they are not at the site when sampling occurs). The new users can tolerate higher numbers but will soon be "displaced" by another user who can tolerate even more. Thus, the "baseline" depends upon when the sampling occurred.

> "Very often managers will aid and abet the process. As more persons enter the area, the managers will perceive a 'need' for more facilities, either to satisfy people or to protect the resource. The result is that the developed nature of the site will encourage persons who might not have used the more primitive area, thus increasing use levels and selecting far more density-tolerant and facility-tolerant visitors." (Schreyer 1976)

The conclusion is that the manager has to identify a clientele and manage for their specific needs. Since there can obviously be a range of experiences possible for a given area, one experience, or a set of related experiences, must be selected from the range and, perhaps, the remainder excluded. Identification of this experience is connected with

[4/] Recreation is not an intangible resource that is not consumable. In fact, the aspect most likely to be consumed is access to a particular experience. This is viewed as "overuse" but more properly should be thought of as "overconsumption."

determining the "primary management clientele" (PMC) (Schreyer 1976). In this way, one group of persons will have the greatest say in determining how the area is managed. As opposed to "lowest common denominator" (LCD) management, PMC management will satisfy most of the needs of one group while LCD management will provide for no one's needs. Driver (1976) agrees that it is an art to allocate resources such that specific desired experiences are provided for consequent human benefit.

"Maximizing benefits through maximizing visitors" is a hang-up (Schreyer 1976) caused by ignorance of the behavioral sciences. Recreation demand is connected with experiences just as well as with opportunities (Driver 1976) and when the major output of recreation management is head count, it will be necessary to sacrifice some of the most important factors leading to quality recreation, i.e., providing for the needs expected by the user. The concept of "greatest good for the greatest number" is logically impossible, since it is impossible to maximize both at the same time (Schreyer 1976). This hang-up has led us in the past to establish a number we called "carrying capacity," thinking that "X" was the greatest number who could realize the greatest good. The problem was that no one was really happy, few could understand the logic (let alone agree with it) and the primary management clientele were ignored.

While it is true that every resource has a capacity for social outputs, just as it does a biological one (Bryan 1982), the number is not an absolute but depends on many variables. The more limited the scope of the resource, the more limited the range of options. For instance, capacity

figures have been successfully applied to rivers (Wallace 1983), trails, etc. But the job becomes increasingly difficult when dealing with complex areas with many different experiences or sets of experiences. Bryan's concept of Motivational Specificity will "provide the manager with a rationale to make hard choices concerning who gets diverted to a substitute resource or setting or who does not, for it can be recognized that for people who have the most specific reasons for utilizing a resource, their satisfaction literally depends on access to that resource." (Bryan 1982) A good example here is the wilderness user, to whom solitude is only part of the need. It is also necessary to have a setting where there is little evidence of previous use.

West (1981) did some rather interesting research concerning social carrying capacity in the Sylvania Recreation Area in Michigan and concluded that "crowding" rarely led to "displacement" or more specifically, there was no relation between feeling crowded and the intent to return. "Of those who felt crowded, the vast majority still plan to return, suggesting that crowding will not create further displacement." It should be evident from this, that the application of use limitations (an important resource allocation decision) should not be treated lightly. Rather, the manager should consider it a "tool to attain an outcome, rather than an inherent characteristic of a recreation resource." (Schreyer 1979) As a tool, in some instances it may enable the manager to recreate a previous setting (wilderness, for example). However, use restrictions are one of the management tools least understood by the public who feel that everyone should be able to

"recreate in the woods." Schreyer goes on to conclude that "Decisions concerning recreational use limitations should be made in recognition of the multiplicity of outcomes constituting a recreational experience: Use limitations should be viewed as one of a large number of tools available for maximizing the opportunity to obtain specified outcomes; selection among alternative tools for maximizing the opportunities to obtain specified outcomes should be evaluated in terms of their capacities to maximize freedom of choice for the user as well as in terms of effectiveness for outcome attainment." (1979)

Conflict Resolution

In many instances, our management strategy has been to minimize perceived social conflict without an adequate understanding of what that involves, or even if conflict exists. As Driver (1976) states "... most human behavior is purposeful, in that recreationists select particular activities because of the satisfying experiences they expect and desire from that activity." Conflict occurs when there is a loss of satisfaction resulting from not meeting the expectations or desires (Bryan 1982). It can be potential or actual. For instance, a backpacker who knows of ORV use in an area does not have to actually experience the ORV use to feel threatened. Similarly, the fly fisherman does not have to actually compete with canoeists on a stream to feel a certain degree of conflict.

It should also be pointed out that conflict can exist for one user while not for the other. For example, in the case of the backpacker, it is questionable whether the ORV user feels any conflict. This is contrasted

with the fly fisherman example, where any canoeist knows the frustrations of meeting a fisherman wading in the middle of the channel, blocking the best route. It is obvious, then, that a clear understanding of the nature of the conflict or potential conflict is necessary before the manager can adequately prevent it.

Where conflict resolution becomes important is that conflict leads to loss of satisfaction. According to Bryan (1982), "... people tend to engage in activities during which they have had positive experiences and avoid those with which they have had unpleasant experiences." It is also demonstratable that good experiences can shape a person's attitude toward his environment (reinforcement), as can negative experiences.

The key to resolving potential and actual conflict between recreationists is to recognize some of the factors drawing people to the woods in the first place. Many of these were discussed earlier. This section will be limited to describing the concept called disaggregation of data. It is a common assumption that recreation is a reward for hard work. The fact is, though, that recreation is done for its own sake. It's fun! Another common mistake among managers is managing recreationists by category (i.e., all fishermen are fishermen. Whether a person goes fishing once or a hundred times, he is treated the same.) However, using the example of the fisherman, Bryan (1982) discovered a degree of specialization that relates to where the person fishes and, to some degree, what their expectations are. Bryan's specialization concept can be illustrated as follows:

Occasional fishermen	Will fish any water for any kind of fish.
Generalist	Will use any kind of tackle but is a little selective on what kinds of fish (may not prefer "hatchery trout").
Technique specialist	Prefers large fish on special equipment (trophy hunter).
Technique/setting specialist	Prefers certain kinds of trophy fish (e.g., trout) in certain settings (e.g., wilderness) on special equipment (flyrods).

The last category of highly specialized fisherman is often dismissed as being elitist. It is also true that the more specialized the activity, the more inclination toward organization (often representative organization). For example, the Sierra Club tends to represent most wilderness campers (specialists). At the same time, most managers tend to manage for the generalist over the specialist with a few exceptions (e.g., Wilderness Management or Wild and Scenic Rivers).

Another situation related to the specialization scale is that equipment advertising is pushing the occasional recreationist or generalist "up the scale." Now we see more and more people with the right equipment but not the ethic. The ORV industry is being taken over by the trend toward more "generalist equipment" such as three-wheel cycles (they are easier for

the kids to use) and even four-wheel "cycles." The ads show four-wheel drive vehicles driving through streams and tearing up the hills.

As more and more users who do not share the specialist's ethic are sharing the woods with the specialist, the tendency toward conflict increases. The specialist tends to have very specialized opinions about the resource and also tends to be intolerant of those who do not share the same opinions. The specialist tends toward preservationist and the generalist tends toward consumer.

Bryan's Motivational Specificity (1982) states that "resources should be managed first and foremost for the recreationists with the most specific motivation recognizing the unique qualities of the resource." In most cases it will also be best for the environment. The manager should keep in mind; however, that the users who are left out will, no doubt, feel short-changed and be frustrated or even angry. This relates to Schreyer's PMC concept described earlier.

When there are gaps between what the resource can provide and what the recreationist demands, the decision often becomes a political one; but, the manager makes the decision with full knowledge of the resource capability. Often the decision will be for the specialist with the most money to spend, as he often spends the most time pursuing that sport. Since it is also likely that this recreationist belongs to an organized group that tends to have protectionist opinions about the resource represented, most users will benefit from this allocation.

Conflict will usually be minimized by: (a) Recognizing that generalists, who are mostly lacking a specific land ethic, are moving up the scale to become more specific in their motivations and (b) attempting to reach these users through an educational program designed to create the ethic that more specialized users already tend to have. It will be necessary to know who these users are and where they live in order to reach them. Several media already exist to accomplish this job and will be more fully addressed in Chapters 3 and 4.

Chapter 3

Implications to Managers

It is the assumption of this study that physical resource data has been already collected or could be easily collected and this study will simply add information concerning the user. The information may be used to help formulate alternatives for management of the area, which generally will be accepted by the users.

The following list condenses the results of this study into a description of the typical user of the Condon Lake area:

1. The typical user is most likely from the Grand Rapids-Muskegon-Holland area.

2. The typical user has been coming to the specific site of their choice for many years, has a set of specific needs, and rarely visits other sites in the study area.

3. The typical user rejects the idea of "development" for the purposes of bettering the area or improving the access and only tolerates user controls. Some forms of user controls, which may not make sense, will not be tolerated, resulting in violations.

4. The typical user is a rather specialized camper with specific needs. They have no great desire for "improvements" such as toilets, etc. The user tends to consider himself a sort of environmentalist and is critical of thoughtless behavior on the part of others (e.g., litter).

5. The typical user has a low tolerance of others outside his party, but a high degree of acceptance of the presence of Forest Service personnel.

6. The typical user just wants to be left alone to pursue his quest for quality recreation or "satisfaction" of psychological needs.

When the research summarized in Chapter II is applied to the problem symptoms leading to this study, several conclusions can be reached concerning how the study area, or the various parts of the study area, should be managed. These conclusions are not alternatives in the management sense, since they only reflect the social side of the resource. It is the job of the planner to combine these conclusions with resource observations to create viable management alternatives at a later date.

Increasing Use; Resource Damage

These two topics are discussed together since they are most often connected in the minds of managers. While this study was not conducted over a long enough period of time to determine if, in fact, use is increasing, evidence seems to indicate that it may not be. The general condition of the study area, in terms of impacts, is better than most other parts of the Forest. There is no general littering, camping has been restricted (by the campers themselves) to relatively few spots, there is no evidence of soil disturbance, and only minor amounts of vegetation loss. During the course of this study, the area was observed eight days (randomly selected) during a three-month period and 23 "camps" (not counting Highbank Lake Campground) were counted. At least one-third of these were

observed on one day (October 21) during deer season. Some spots where camping had obviously occurred in the past were not used at all. Most dispersed use was restricted to sites at three lakes (Condon, Amaung, and Sawkaw). Highbank Campground was full each time the site was visited.

Any management scheme addressing use or recreation impacts should attempt to monitor use/impacts over time and only impose restrictions after use/impacts reach a predetermined level. Use restrictions should be preceded by a public involvement program, designed to inform the user of the need for such restrictions. Since we know that most area users are from the Grand Rapids-Muskegon-Holland area, TV spots, news ads, chamber of commerce contacts, and radio announcements can all assist the District in informing the user (PMC) of intended management controls and the purpose behind them.

All resource impacts should be measured against Appendix C to determine relative importance of impacts. The District should avoid the temptation to manage the lakes area under a "no impact" philosophy, opting rather for schemes that provide minimal regimentation or user controls. The decision to initiate corrective measures when (or if) resource damage does occur should be based on an analysis that shows we will "get our money's worth." In other words, the benefits outweigh the costs. Again, Appendix C is the tool for this decision.

Since there is no evidence that any of the lakes are experiencing overuse (some do not show any signs of active use) the District should not attempt to employ any use-controlling or limiting tactics such as permits

or establishing limits at lakes. Instead, the District should carefully monitor user satisfaction through personal contacts with users and watch for signs of dissatisfaction that imply displacement may be occurring. At that point (after obvious evidence of perceived crowding by the user) use limits can be effective. Use limits should be based upon the needs of the Primary Management Clientele, not an attempt to provide "something for everybody."

Management Thrusts

1. "Improvements" - Under this heading are included such items as construction of camp improvements (toilets, water, etc.) and general improvements such as barrier posts, gates, etc. Studies (as documented in Chapter 2) showed that visitors will object to most forms of alteration of the setting. It was found this last summer that users of the lakes area prefer the setting the way it is now. Users who were overflow from Highbank Lake (they were actually looking for a developed camp) tended to favor increased development of the dispersed zones. However, those who had sought the settings provided by the dispersed zones did not want any additional improvements. Specifically mentioned were: No toilets, no water, or garbage collection. We must keep in mind that the user considers himself a sort of concerned environmentalist and leaves the site as he found it, or cleaner, and hopes other will do the same.

In the process of doing a benefit/cost analysis for any proposed facilities or improvements, consider need as a primary determinant of benefit. If the visitor does not want the improvement, the project has to be considered of negative benefit.

As mentioned in Chapter 2, equipment advertising has led to pushing users up the specialization scale. In other words, the dispersed camper has become a rather specialized camper with specific needs due, in part, to the needs of his equipment. Trailers and motorhomes need large flat areas and places to turn around. Three-wheeled cycles need wider trails and areas to run. Also, the reverse is true: The users do not need toilets, tables, water wells, etc. In fact, the presence of these things tends to downplay the significance of their ability to go "self-contained" or go where they want. They do not have to be tied down to a campground, per se. Therefore, they have no desire for improvements.

2. "Controls" - None of the lakes were considered to be experiencing overuse. As mentioned previously, there were no obvious signs of "resource damage." Only one spot (on the east shore of Condon Lake) had evidence that soil disturbance may be occurring and perhaps this location should be considered for soil reclamation/stabilization work. The studies documented in Chapter 2 showed overwhelming consensus among dispersed users that settings where they could "do their own thing" were why they were seeking that area in the first place. The user of the lakes area has to contend with regimentation and controls, day in and day out. When a person leaves home and heads for the lakes area, that person wants the minimum in regimentation.

It is recommended that the District avoid the use of obvious controls (such as barrier posts, signs, etc.). In no case should negative signing be used ("no camping here") but rather a carefully designed positive style of sign should be employed where necessary. Since the objective is

to let the user have maximum opportunity for freedom from control, use of signs should be at a minimum (that is, where no other option exists).

Personal contact with visitors by uniformed patrols is often a touchy subject. There was no evidence that visitors were offended by the presence of uniforms. Visitors were obviously friendly in all cases and in many cases initiated conversations. This is consistent with Kaplan's conclusions that urban residents are not entirely comfortable in the woods, but the presence of some type of protectorate seems to be reassuring to them. There was no research available that demonstrated the opposite. This conclusion is important in that it establishes the need for personal communication between the manager and the user that can ultimately be useful in educating the user in areas deemed necessary. For instance, where noise has been a problem, personal contact can educate the users on the need for quiet.

3. "Conflict Resolution" - This study was not detailed enough or comprehensive enough to uncover any user conflict. It was suggested by the District that some conflict exists, particularly between summer home residents and campers at Sawkaw Lake and ORV users and campers throughout the area. Additional research should be conducted to isolate the cause of the conflict before conflict resolution is attempted. The principles of conflict resolution are presented in Chapter 2.

4. "Management Theme" - The area studied for this "project" has been considered in the Forest Plan as potentially suitable for management as a "semiprimitive motorized" area. However, due to reasons beyond the scope

of this paper, the study area will not be classified as semiprimitive. Rather, it will be managed as a "special area," meaning recognition of the values that were considered important in the first place. It is recommended that the special designation not be advertised in a way that draws attention to the area's attributes. There is a delicate balance between attracting use through advertising, etc. and having an area that is not used to potential. The temptation is to advertise any attractive area and then the problem becomes one of addressing the increasing use.

Increasing use is not in itself a problem, but tends to be an indicator that the primary management clientele is in danger of losing the qualities they are seeking in an area. Increasing use usually means less peace and quiet or solitude, may lead to resource impacts that are excessive, and sometimes leads to the need for regimentation.

It is recommended that the District recognize the existing qualities the area provides for the current user. The current user should be considered the primary management clientele and thus our management theme should follow the PMC's expressed needs. Specifically, they are such things as a relatively uncrowded setting, little management control, difficult access to camps (helps keep the "tourists" away), "natural" setting without improvements, etc. Some of the qualities that a "semiprimitive" area may possess are needed here as well (such as limited access); however, "semiprimitive management" may deny the user some of the things they currently seek and find. Use of motorboats, motorhomes with electric generators, ORV's, etc., are all a part of the experience now realized. In addition, there is some evidence that the natural

environment is not so important as the fulfillment of the social needs the user comes with, such as need to escape the pressures of the work environment, to achieve physical and mental rest, or for privacy--a chance to just be with family or friends without the intrusion of outsiders or the hassle of regulations he experiences at other times. These things can be provided in settings other than semiprimitive. Indeed they can be provided better in an area designated "roaded natural" but managed for controlled access with unimproved roads.

The individual lakes suggest different management options as highlighted below:

Highbank Lake

The developed campground at Highbank Lake seems out of place in an otherwise dispersed area. The experience provided by this campground could be better provided at other lakes, more accessible, perhaps larger, with better beaches, etc. The experience that Highbank Lake can best provide is not developed camping, but dispersed camping, as a part of the Condon Lake area management theme.

There comes a time in the life of every developed campground, when it costs more to keep the campground than to get rid of it or rehabilitate it. This point is usually 30 to 50 years after first opening the campground. It is recommended that provision be made to rebuild the campground at a new location outside the study area rather than rehabilitate in place. It is beyond the scope of this study to consider the economics

of such a proposal. It is assumed an economic analysis will consider the management alternatives (including this option) as they are developed.

The recommendation to convert the use of Highbank Lake is based upon the following observations made during the course of this study.

1. In an area of otherwise minimal development (with dispersed use only) two kinds of development stand out, the summer homes and the developed campground. It is often argued that the summer homes should be closed out because they are inconsistent with our current management philosophy. But the fact is that the psychological setting that these cabins provides is not much different from that enjoyed by the trailer camper in a dispersed area.

2. The impacts of the campground are more far-reaching than merely the existence of development within an undeveloped area. The campground user does not share the same ethic that motivates the dispersed user. Therefore, their needs or demands are vastly different. For instance, a campground user who cannot get into the campground because it's full, will camp in the general forest zone surrounding the campground, but not like it. Any discussions with these people will soon point out their desire for more "facilities."

3. The demand for both developed camping and dispersed camping continually increases leading to pressure for more campsites. Since the primary use of the study area is dispersed camping, it seems reasonable to favor the dispersed camper's needs when it comes time to resolve the conflict between both demands.

Amaung Lake

In the past, users were able to drive to the lakeshore over two-tracks. These user-created roads were causing large amounts of gullying in the sandy soil around the lake. Since the District blocked the roads leading to the water's edge, the erosion problem has been corrected and, to some degree, the hillsides have healed. Now, however, users express some dissatisfaction with the closure. The reason users want access to the lake is to launch "car-top" boats. The present carry-in philosophy employed by the District seems to impose a hardship on some people. Four alternatives are presented to address management of the Lake Amaung area:

a. Reopen the roads to the lake. While this alternative may eliminate the concern being expressed by the people who want to store boats at the lake during the summer, it will also re-establish the situation that led to erosion and other resource damage in the first place.

b. Gate one access route while leaving all others permanently closed. This alternative would allow motorized access to the lake for the purpose of delivering or picking up boats only at certain times of the year. This alternative would help to eliminate the displeasure on the part of current users, but would impose a management "control" that would be hard to explain to other users who do not have a need to drive to the lake (i.e., "They get to drive to the lake, why can't I?" or "How come we have a road to the lake, but I can't drive?"). This confusion over policy will undoubtedly lead to vandalism of the gate, driving

around the gate, or other activity that has been rationalized in the mind of the user. In fact, the closure may be impossible to enforce.

c. Permanently reopen one access route to a turnaround spot on the south end of the lake. Any boat storage allowed would be in one designated area. No overnight camping would be allowed within 500-1,000 feet of the access point or along the access road. Overnight camping would be permitted at other areas as is presently permitted. This alternative may in fact solve most of the dissatisfaction problems at the lake. It is suggested, however, that to assist enforcement of the policy concerning camping, personal contact be used by managers to be sure users understand the reasons behind the policy. This alternative should be relatively easy to administer.

d. Leave all roads permanently closed. Under this alternative, camping would be permitted but access would be walk-in only. The clientle for which the area would be managed would be those currently desiring a place where motor access is prohibited. Some limited use now occurs connected with use of motorbikes (which are, in fact, prohibited but which can easily access the lake around present barriers) or walk-in. This alternative ignores the dissatisfaction of the boaters but does provide a relatively rare opportunity. It should be pointed out, however, that this same setting can be provided, in part, under alternative "c.," which is easier to enforce.

Sawkaw Lake

Not much is known about the origin of the conflict expressed by the summer homeowners concerning rowdy campers, noise, beer parties, etc. It is suggested that because of the physical orientation of the road system (i.e., the residences are on a "dead end" road and the camping occurs along the road) they feel their exit is blocked. They have no escape route in case of trouble. This may effect the magnitude of the problem in their mind. It is suggested that this problem be investigated fully and if access is the problem then consider constructing an alternative access route to the cabins. If group size is in fact large (this was not the case this summer, however) perhaps other areas may be more suitable for their activities.

It is known that the lake has a rather poor fish population (Appendix E) and the fishing pressure by the campers could be perceived as a threat to the summer homeowners. In this case, the District has to decide who the PMC is and manage for them. Policies concerning use of the lake by other than the summer homeowners should be based on the PMC.

Condon Lake

The lake can be considered one of the most beautiful on the Forest. While not experiencing a large volume of use (except for possibly one or two weekends a year), the people who do call this spot "theirs" are rather opinionated about how the lake should be managed or developed. "Leave it the way it is," is the overwhelming sentiment. Access to the

lake is rather limited on a poorly graded two-track and this, in part, helps to keep use down.

Management of this lake should strongly consider the needs of the current users as PMC and thus not include a lot of regimentation such as signing, designating camping spots, providing convenience facilities such as toilets, wells, etc. Access should remain restricted to those willing to drive rough roads.

ORV use (mainly cycles) on the east shore has caused soil erosion that can be considered intolerable. This should be corrected by closing access to that location and enforcement of that closure. Personal contact with users can reinforce the closure.

Use at Condon Lake should be monitored through personal contact. If use levels increase to where complaints are heard from many users about "crowding" then use limits should be considered by designating campsites.

Leaf Lake, Kenosha Lake, and Other "Ponds"

These areas get very little use; therefore, require little attention. No controls are warranted. The District should consider that improved access may change the situation; therefore, road improvements for activities such as timber access, etc. should avoid these areas.

Proposed North Country Trail (National Scenic Trail)

A trail location to Condon Lake from the south has been designated that will route the trail on the west side of Condon Lake. Because the clientele expected to use the trail has needs differing from the camper now

using Condon Lake (and the other lakes as well), the District should reconsider this location. It is highly likely that conflicts will arise encouraged in the same area. It is suggested that the trail be routed on the east side of Condon Lake, avoiding Sawkaw Lake altogether, and directed toward the small lakes (ponds) west of Highbank Lake (see Appendix D). This would take advantage of some of the variety the area offers, while avoiding potential conflict between users that will lead to further management problems. Further analysis of this proposal should recognize the costs of both resource and social values. An economic analysis should be made that recognizes the social needs and the value of not having to deal with public complaints or conflicts.

Chapter 4

Application to Other Areas

The research presented in this paper can be applied to other areas of the Forest and, perhaps, to other Forests as well. In some cases the findings are directly applicable as in the case of dispersed areas with lakes on the White Cloud and Baldwin Ranger Districts. In other cases it will be necessary to field test the conclusions before relying too closely on them. Settings vary from area to area as do the characteristics of the visitors and these variations will have to be taken into consideration.

When field testing the recommendations of this study, several things should be taken into consideration.

1. Personal contact between the District managers and users of the area will lead to conclusions concerning users' attitudes about such things as setting preference, expected satisfactions, management activities (such as user controls), and origin of user.

2. Studies of various lakes will lead to a profile of use levels that will be of assistance in predicting increasing/decreasing use patterns. This, of course, will assist the District in determining the need for controls or site modifications.

3. The Condon Lake example can be used as a standard by which other lakes can be compared to determine relative amounts of use. In other words, environments meeting the same criteria as the setting for the Condon Lake area will exhibit similar use patterns, by visitors with similar expectations. This conclusion is field testable.

4. It is expected that areas with users from the same points of origin ("home town") will have the same kinds of alternative management patterns as Condon Lake does. It is expected that most of the lake settings of Oceana, Newaygo, and Muskegon Counties will have users from the same points of origin (i.e., Grand Rapids, Muskegon, Holland). It is also expected that areas on the Huron National Forest are used primarily by residents of the Saginaw-Bay City-Midland area. These users are likely to express a different set of needs or expectations.

5. Many of the concepts presented in this paper are applicable in all cases. For instance, findings related to carrying capacity, crowding, preference testing, and resource impacts may be true in other cases. These findings should prove helpful in developing management plans for other areas.

Chapter 5

Research Needs

As pointed out in the Introduction, the absence of specific research items hampered, somewhat, the progress of this study. For instance, more needs to be known about actual use patterns of the various sites; therefore, a long-term study documenting not only use volumes of use but visitor origins would be beneficial in predicting the need for user limits. Visitor origin information would allow managers to advertise the use limits and educate users.

Another area of needed research is related to testing the conclusions reached in this study as they relate to other lakes on the Forest. The testing conducted in this study was rather limited and, to reach conclusive results, several years of investigation are necessary. An obvious objective would be to construct a demand model that would predict future changes to a low demand lake as demand increased. What sort of impacts would occur? How would the setting change? How would the clientele change?

Other research that would be meaningful would be a survey to test dispersed camping trends, much like researchers have tested skiiers, hikers, or snowmobilers. This research would point out trends in equipment, projections in use, and demand for various settings; it might test the dependency upon various settings and what the specific qualities of the setting are that best meet dispersed campers needs (e.g., remoteness, scenic quality, etc.).

Research should be conducted at lakes where user limits have been enacted to determine reaction to these controls. Specifically, do dispersed

campers react negatively to designation of camp spots? Limited samples and review of research in other areas suggest they will react negatively, but specific testing on lakes in this area would settle that matter.

Research directed toward predicting user satisfaction would be helpful. Specifically, research would compare user expectations before arrival at a spot with how they felt about the area's ability to satisfy their needs after they arrived.

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Appendix

Appendix A

FSM 2302 - Objectives

Forest Service recreation objectives are to:

1. Make opportunities of forest recreation available to all segments of society.

2. Encourage participation and enhance the quality of experiences through management of National Forest System lands; research; and technical assistance to State and private forest managers, and coordination with private and public suppliers. It is this single item more than any other that supports the contention that providing quality experiences (i.e., user satisfaction) is, in fact, a primary concern of the Agency, if not all recreation managers.

3. Develop and maintain professional excellence in recreation management, with emphasis on being the host to recreation visitors in such ways as providing information and educational facilities and promoting user safety. It seems that the emphasis has usually been to promote user safety, which can be interpreted a lot of different ways. This study found that emphasis on other areas is often preferred by the public. The public rarely agrees with our managers on the subject of user safety. (Downing and Clark 1979)

4. Manage through service with a minimum of regulation. This objective of the Agency is strongly supported by the public as determined by research. For instance, Downing and Clark (1979) determined that in many instances "efforts to close or restrict use of favored areas may lead to

rule violations by users who reopen access to these areas by removing barriers or closure signs. Previous research further suggests that without understanding reasons for restrictive management actions, users may be able to rationalize this rule violation." Obviously, then, Agency objectives to emphasize being a good host by providing information (3, above) suggests a relationship to the problems pointed out by Downing and Clark.

5. Increase the supply of outdoor recreation opportunities and services through programs which emphasize dispersed recreation, while accommodating its current share of developed or concentrated site recreation.

6. Use the private sector capabilities to develop and maintain, on National Forest System lands, needed public recreation facilities, providing the long-term public interest is protected. (2302.2 Land Planning and Management)

7. Limit regulation, constraint, and supervision of recreation user to the minimum necessary for resource protection, visitor satisfaction, and safety.

Source: Appendix 21
Outdoor Recreation
Great Lakes Basin Framework Study
BOR-USDI (1975)

Annex D

CALCULATION OF ACREAGE NEEDS AND REQUIREMENTS

To measure the needs of people against the resource base, activity occasions must be converted to an acreage base. This required the calculation of normal summer Sunday equivalent (design) days, turnover factor for each activity, the conversion of summer activity occasions activity occasion requirements to an acreage equivalent, the calculation of the existing and potential supply base in acres and the derivation of needs in acres. This was accomplished by the following steps.

(1) The number of design days (normal summer Sunday equivalent days), provides the basis for determining average daily design loads. In this study, two different criteria were used to allow for differences in weather conditions between the northern and southern parts of the Region. The recreation season was assumed to span a period of 14 weeks extending from Memorial Day through the Labor Day weekend, an average length of 98 days. Data developed on Corps of Engineers reservoirs in Indiana and Kentucky revealed that nearly 50 percent of all attendance took place on Sunday, 14 percent on Saturday, and the remainder divided nearly equally among the other five days. Therefore, the fifteen Sundays and three holidays were assumed to represent average design days. It was assumed that three weekdays would be equivalent to one design day; therefore, the eighty remaining days would equal 27 design days, for a total of 45 design days. However an adjustment must be made for adverse weather conditions. It was assumed that 20 percent, or nine, of the gross number of design days would be lost because of weather, leaving a net of 36 design days for use in the calculation of design loads. The number of design days used in the northern planning subareas—PSAs 1.1, 1.2, 2.1, 2.4, 3.1, and 5.3—was 32 days. The same basic approach was used except the adjustment for adverse weather conditions was increased to 30 percent.

(2) Turnover refers to the number of times that a facility will be used during an average design day. The use of this factor reduces design day loads to instantaneous design loads.

$$\text{Design Load} = \frac{\text{Summer occasions by activity}}{\text{Design days x turnover factor}}$$

In this study, the turnover factors in Table 21–47 were used.

(3) Requirement in acres by activity was derived by the following formula:

$$\text{Acres Needed} = \frac{\text{Summer occasions by activity}}{\text{Design days x turnover factor x people/acre}}$$

The standards in Table 21–48 for the number of people per acre were used for planning purposes in this study.

(4) Supply information about acres of land devoted to various uses and units of facilities by activity was obtained from the Nationwide Plan Inventory, dated 1965. The States were requested to provide updating information on State and local recreation facilities constructed between 1965 and 1969 and on programmed construction through 1980. The U.S. Forest Service provided the same information on national forest lands. All of this information was adjusted by use of the design standards to reduce supply data to a common base for comparison with requirements.

TABLE 21–47 Turnover Factors

Activity	Northern Part of Basin	Southern Part of Basin
Boating	1.5	2.5
Water-Skiing	6.0	6.0
Swimming	2.0	2.0
Picnicking	2.0	2.0
Camping	1.0	1.0
Hiking	1.0	1.0
Nature Walks	8.0	8.0
Playfields	3.0	3.0
Golf	1.0	1.0
Horseback Riding	2.0	2.0
Bicycling	2.0	2.0
Ice Skating	2.0	2.0
Sledding	2.0	2.0
Snow Skiing	1.0	1.0
Canoeing	1.5	1.5
Sightseeing	10.0	10.0

TABLE 21–18 Standards for Facility Development

Activity	Northern Part of Basin	Southern Part of Basin
Boating	9 acres of water/boat 3 visitors/boat 3 acres of water/visitor	6 acres of water/boat 3 visitors/boat 2 acres of water/visitor
Water-Skiing	24 acres of water/boat 3 visitors/boat 8 acres of water/visitor	24 acres of water/boat 3 visitors/boat 8 acres of water/visitor
Parking (cars, boats, and trailers)	3 visitors/car 33 cars & trailers/acre 99 visitors/acre	3 visitors/car 33 cars & trailers/acre 99 visitors/acre
Swimming	40 sq.ft. of dry sand/person 80 sq.ft. of grass area/person 360 visitors/acre	40 sq.ft. of dry sand/person 80 sq.ft. of grass area/person 360 visitors/acre
Picnicking	5 tables/acre 4 visitors/table 20 visitors/acre	10 tables/acre 5 visitors/table 50 visitors/acre
Camping	5 campsites/acre 4 visitors/site 20 visitors/acre	8 campsites/acre 4 visitors/site 32 visitors/acre
Hiking	20 visitors/mile	40 visitors/mile
Nature Walks	50 visitors/mile	50 visitors/mile
Playfields	10 visitors/acre	20 visitors/acre
Golf	35 visitors/hole 7 acres/hole 5 visitors/acre	35 visitors/hole 7 acres/hole 5 visitors/acre
Horseback Riding	10 visitors/mile	10 visitors/mile
Bicycling	20 visitors/mile	20 visitors/mile
Ice Skating	100 sq.ft./visitor	100 sq.ft./visitor
Sledding	40 visitors/acre	40 visitors/acre
Canoeing	4 visitors/mile	4 visitors/mile
Snow Skiing	20 visitors/acre	20 visitors/acre
Parking (General)	90 cars/acre 4 visitors/car 360 visitors/acre	90 cars/acre 4 visitors/car 360 visitors/acre

(5) For 1970, needs in acres or in miles were derived for each activity by subtracting the existing supply from the 1970 requirement for each activity. For future time frames, needs in acres or in miles were derived for each activity by subtracting the existing and programmed supply from the respective activity requirements for each time frame.

Appendix C

United States Department of Agriculture | Forest Service | Huron-Manistee N.F.'s

Reply to: 2550 Soil Surveys

Date: December 20, 1983

Subject: Guidelines for Assessing Importance of Soil Resource Damage

To: Landscape Architect

This memo is a response to your request for guidelines on subject matter. To characterize soil resource damage requires: (1) Defining the term soil resource damage; (2) providing measures of degree, magnitude, and importance; (3) establishing minimum acceptable limits; and (4) developing criteria for determining in the field the degree, magnitude, and importance of soil resource damage.

Due to the complexity of differing landscape conditions (soil properties, slope gradient, length, conformation, hydrology, etc.), vegetative responses and needs, and impacts by assorted uses (e.g., ORV, timber harvest, hiking, sunbathing, etc.), it is impossible to wholesaledly characterize soil resource damage by way of a handbook or table on a reliable, quantitative basis. This section offers an emperical means of approximating soil resource damage through the four steps noted above. This material should be used as preliminary guidelines in assessing soil resource damage. When significant, extensive, and/or important damage is suspected, on-site investigations by appropriate specialists are in order.

Soil resource damage has occurred when soil chemical, physical, or biological properties have been adversely altered through excessive wind and/or water erosion, physical displacement (e.g., site preparation), volitalization (fire), nutrient depletion (harvest intensity), or other means. An assessment of soil damage has to be specific to soil types and ecosystems. Soils have no nutrient or water requirements per se. Soil damage or impacts have to be viewed from the perspective of the ecosystem they are part of, as soils influence vegetation or water quality.

The degree of soil resource damage is a measure of the relative impact on the behavior of the ecosystem in question. For example, loss of the surface two inches of an organic soil is of negligible impact from the productivity, hydrologic buffering capacity, regeneration, etc. standpoints; hence, of a low degree. Loss of the surface two inches of an upland forested site is a highly adversive impact from all biotic standpoints; consequently, of a large or severe degree.

The magnitude of soil resource damage is a measure of the extent of damage. It is spacially defined on a per acre basis. Included in this and the degree measure is a coefficient for the direction in which the condition is going over time. For example, the magnitude of any particular eroded or non-vegetated area may be static, increasing, or decreasing. Or sites which have been excessively disturbed or depleted through site preparation or harvest activities will be adversely impacted to a greater magnitude and/or degree if successive activities of the same intensity are applied. An increasing magnitude or degree of soil damage over time has greater importance.

The importance of soil resource damage is a function of the degree and magnitude. The legal ceiling or uppermost importance value is that level of degree and magnitude which permanently impair the productivity of the land, according to the Sustained Yield Act and NFMA.

Minimum acceptable limits should be a line/staff decision based on inter-disciplinary input. My opinion of these limits are:

(1) Rates of soil surface erosion on a per acre basis in the ten years following any management activity will be less than 1%/acre/year, or less than 10% in ten years, of the total soil LHF and A1 horizons occurring in a "natural state," (not to exceed 10% in any 100 year time interval);

(2) Extent of non-accelerating erosion is less than 10% of the landscape on a per acre basis;

(3) Extent of accelerating erosion is reduced to and maintained at less than 10% of the landscape on a per acre basis;

(4) Imports of soil organic matter and nutrients through decomposition, fixation, weathering, atmospheric inputs, etc. will be greater than or equal to exports through harvest, fire, site preparation, or other management activities within a 100 year time period.

If soil disturbance, depletion, or damage exceed these levels, mitigating or restorative measures should be implemented, in my opinion.

The following table addresses erosion exclusively. Damage through compaction, nutrient depletion, etc. are not considered at this time due to measurement and value interpretation difficulties.

Guidelines for Determining Importance Values for Soil Erosion Damage

Soil Type "Natural Condition" of Soil Surface	Proportion of Soil Surface Loss		Area Affected/Acre		Direction of Condition	
	Degree	Rating	Magnitude	Rating	Direction	Rating
To be determined on-site	0-10%	10	0-2%	1	Static	1
	10-20%	12	2-5%	2	Decreasing	0.75
	21-30%	15	6-10%	3	Increasing	1.25
	31-40%	20	11-15%	4	If unknown, enter 1	
	41-50%	25	16-25%	5		
	51-60%	30	26-35%	7		
	61-70%	35	36-50%	10		
	71-80%	40	51-75%	15		
	81-90%	45	>75%	20		
	91-100%	50				

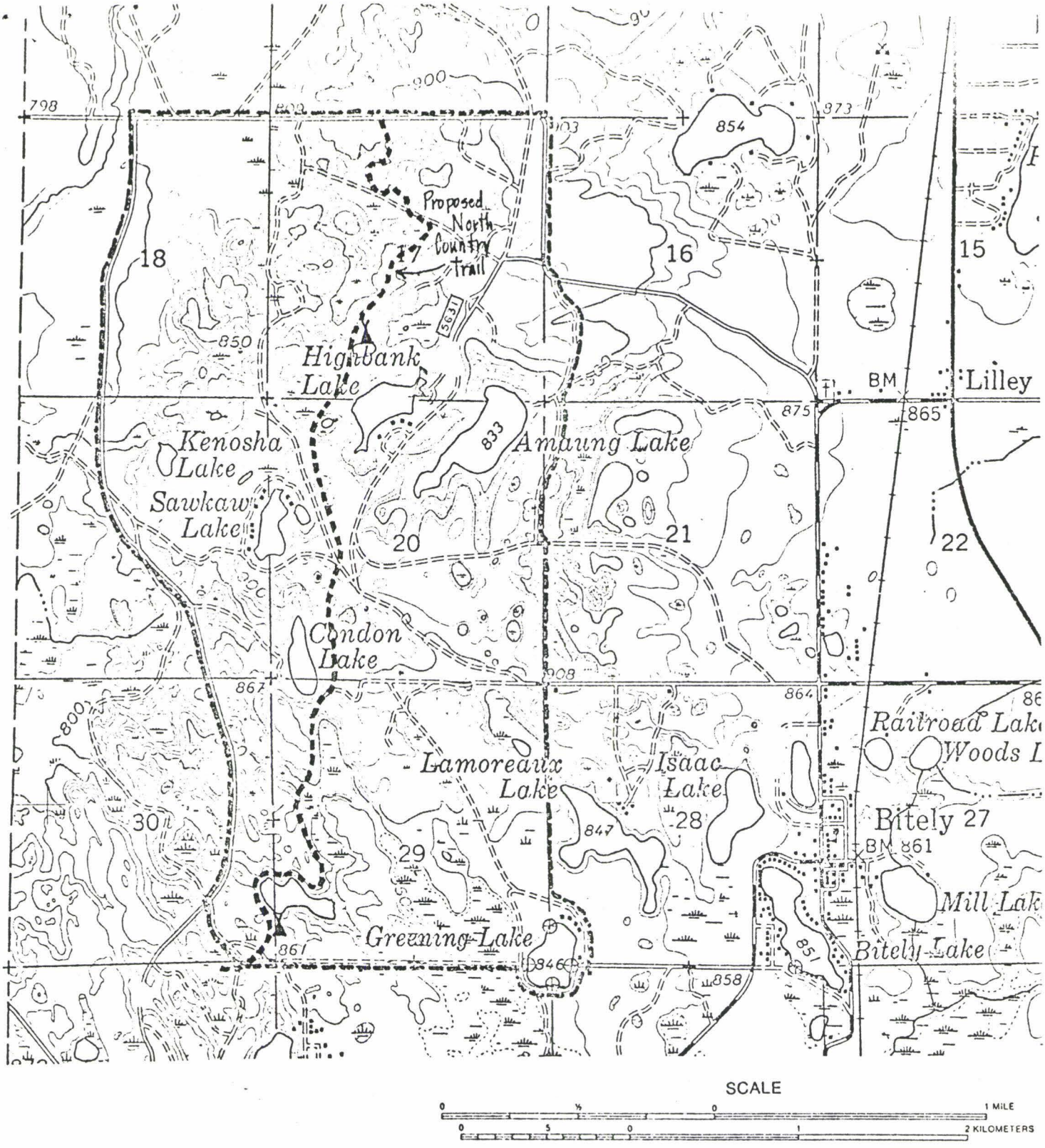
Importance Value = (Degree Rating) x (Magnitude Rating) x (Direction Rating).

My recommendation of a minimally acceptable importance value is a value equal to or less than 126. My estimate of the legal ceiling would be values equal to or greater than 225. Importance values of 126 or greater signify the need for monitoring and/or mitigating measures. Values greater than 225 signify restoration needs. Values less than 126 are minimally acceptable.

The recommendations and importance values offered in this memo are tentative Forest guidelines. The concern over land use related soil resource damage warrants a larger effort by an interdisciplinary team prior to finalizing guidelines.

Dave Cleland

DAVID T. CLELAND
Forest Soil Scientist



Proposed North Country Trail

Appendix E

United States Department of Agriculture — Forest Service — Huron-Manistee N.F.'s

Reply to: 2630 Habitat

Date: October 14, 1983

Subject: Potential Semi-Primitive Motorized Area

To: Landscape Architect

Most of the lakes within this area are under habitat or population management by either F.S. or DNR.

Highbanks Lake

This lake is currently under a chemical treatment schedule by the F.S., but we propose a net treatment in FY 1984 to improve habitat for bass reproduction and bluegill growth. Lake currently contains a limited (perhaps non-existent) bass population, a stunted bluegill population, and an occasional northern pike or yellow perch. DNR will stock largemouth bass after F.S. thins bluegills to allow physiological reproduction of bass to take place. Research has shown that bass will not spawn if too many bluegills constitute part of the bass habitat.

Highbanks Lake was last surveyed in 1982. Lake receives extreme fishing pressure, but can sustain this pressure provided enough bluegills can be thinned from the bass habitat to allow reproduction.

Amaung Lake

This lake is currently under a partial chemical treatment schedule by the Michigan DNR for largemouth bass - bluegill habitat management.

Amaung Lake was last surveyed in 1968. Survey showed a stunted bluegill population, an overfished largemouth bass population, and no legal yellow perch or green sunfish. F.S. should survey this lake and make a habitat recommendation (e.g., cribs in deeper waters) to improve present fishery. Existing fishery is rated as fair with moderate pressure, but potential fishery for warm-water species is listed as good with ability to support increased pressure.

Kenosha Lake

Michigan DNR currently manages this lake under a chemical treatment schedule with an annual stocking of brook trout. (no stocking in last 3-4 yrs according to DNR) RSP

Kenosha Lake was last surveyed in 1969; it receives light fishing pressure and present fishery is rated as fair.

Sawkaw Lake

No management currently exists. Trout management was proposed and trout were even stocked in the early 70's. Recommendations by Michigan DNR are to resurvey Sawkaw Lake and possibly move to a chemical reclamation trout management scheme.

Sawkaw Lake was last surveyed in 1969, but trout plants were evaluated in early 70's. Survival and growth of stocked trout were good, but plants were discontinued because stunted panfish competed with the trout for a limited food source. DNR will survey Sawkaw Lake next summer.

Present fishery is rated as fair with moderate pressure. Potential fishery is rated as good with ability to support increased pressure.

Condon Lake

This lake receives an annual stocking of rainbow trout and is under a chemical treatment schedule by the Michigan DNR.

Condon Lake was last surveyed in 1976 and DNR proposes to resurvey this next summer. Present fishery is rated as good with moderate pressure.

Greening Lake

This lake is currently under no management. Greening Lake receives extreme fishing pressure; fishermen report stunted bluegill populations and under-sized bass (typical of lakes on this Forest where habitat for bass needs to be improved).

Greening Lake has never been surveyed. Present fishery (strictly from conversations with fishermen) is poor to fair, but potential probably exists to provide a good warm-water fishery.

Leaf Lake

Michigan DNR stocked pike fry into this lake, but no follow-up evaluations were completed.

Leaf Lake was last surveyed in 1969. Current fishing pressure is unknown. Most likely, present fishery is poor, with potential to upgrade fishery to fair with some pike management.

F.S. within last five years proposed surveys of all lakes within this area, but actually completed only Highbanks Lake survey; hence, the DNR's survey plans for Sawkaw and Condon Lakes during summer of 1984.

Area probably currently supports 300 WFUDS of quality cold-water angling and approximately 570-1140 WFUDS of poorer quality warm-water angling. This area has the potential to support 645 WFUDS of quality cold-water angling and 870 WFUDS of quality warm-water angling.

This lake management unit, as a whole, has the potential to respond well to habitat and population management. We have the opportunity to offer fishermen a quality fishing experience similar to what we provide fishermen at Hoist and Reid Lakes Foot Travel Areas. I have received many favorable comments about "good fishing" in an "out of the way place" from fishermen utilizing Hoist and Reid Lakes Foot Travel Areas. Our other river systems and large lakes are extremely productive, but the angler must compete with canoes and other users to the point of having a lesser quality experience.

I believe one angler's comments about Hoist Lakes sums it up well, "It's nice to know that you can catch dinner after walking all the way in here!"

M.J. Hosmer-Billetdeaux

M.J. HOSMER-BILLETDEAUX
Fisheries Biologist

cc: Hosmer-Billetdeaux
Gusler

Appendix F

United States Department of Agriculture | Forest Service | Huron-Manistee N.F.'s

Reply to: 2550 Soil Surveys

Date: December 19, 1983

Subject: Soil Resource Damage Assessment

To: Landscape Architect

Earlier this fall, we examined eight sites along seven lakes on the Baldwin Ranger District for possible soil resource damage associated with dispersed camping activities. This memo reports findings.

AREA ONE--North side of Amaung Lake at "hunter camp": This location was non-vegetated in an area approximately 130 feet by 130 feet. Examination of this approximately 0.5 acre spot revealed a thin, windblown sand cap over one inch of the soil surface. Apparently, little if any erosion of the soil surface has occurred to date. Conclusion--no problem.

AREA TWO--Northeast corner of Amaung Lake: This location has had problems with erosion in the past. The Ranger District has done a good job in arresting this erosion by road closure and installment of terraced soil entrapments. Conclusion--no problem.

AREA THREE--SawKaw Lake: This area has approximately 0.4 acre of non-vegetated soil. The soil "A1" horizon on this 0.4 acre is 75% intact. Conclusion--no problem.

AREA FOUR--Greening Lake: Area has approximately 0.3 acre of non-vegetated soil. The soil "A1" horizon is 75% intact. Conclusion--no problem.

AREA FIVE--Walkup Lake: Area has had erosion problems in the past. Roads have been closed and soil erosion has been controlled. Conclusion--no problem.

AREA SIX--Leaf Lake: Area has less than 0.25 acre non-vegetated, with no soil resource damage apparent. Conclusion--no problem.

AREA SEVEN--Condon Lake: Area has some erosion occurring and probably accelerating, due to ORV's driving down to and into the lake. Conclusion--problem area.

AREA EIGHT--Kenosha Lake: Area has some problems with erosion. The soil surface has been excavated six to ten inches by vehicular traffic in concentrated use lanes. Conclusion--problem area.

DAVID T. CLELAND
Forest Soil Scientist

cc: Baldwin R.D.